

VS Id#	Vital Sign Category			Vital Sign	Network Rank	NPSA
F5	Freshwater Ecosystems	Consumers	Population	Established Alien Species - Predatory Freshwater (vertebrate and invertebrate)	2.9	
H17	Management Zones			Wilderness Areas - HAVO, HALE, other Unofficial	1.1	
P16	Soil, Water, & Nutrient Dynamics			Soil Crust Change (Arid-Semiarid habitats)	0.9	
P35	Geology	Hazards		Volcanic Unrest - Lava Flows	1.2	
P40	Geology	Landforms		Dune Change (erosion & accretion)	0.9	
P41	Geology	Landforms		Permafrost on Big Island summits	0.0	
T04	Terrestrial Ecosystems	Vegetation	Landscape	Fire Effects & Dynamics: Vegetation and Landscape Level	2.5	
T36	Terrestrial Ecosystems	Consumers	Population	Established Alien Species - Terrestrial Invertebrate Pests (human structures)	1.9	
T23	Terrestrial Ecosystems	Consumers	Population	Forest Birds and Bats (includes T & E spp.)	3.1	4.4
M04	Marine Ecosystems	Benthic	Community	Subtidal - Hard Bottom (coral reef, colonized basalt, etc.)	2.7	4.3
P21	Water Quality			Marine Water Quality Core parameters	3.3	4.3
T07	Terrestrial Ecosystems	Vegetation	Community	Long-term Plant Succession	3.5	4.2
M09	Marine Ecosystems	Benthic	Population	Established Coral Disease & Pathogens (including bleaching)	2.4	4.0
T16	Terrestrial Ecosystems	Vegetation	Population	Established Alien Species - Plants	4.0	4.0
M19	Marine Ecosystems	Water column (motile)	Population	Fish Growth/Size and Age Structure, and Recruitment	3.2	3.8
H15	Park Use & Activities			Reef Fisheries Harvest	2.6	3.6
T34	Terrestrial Ecosystems	Consumers	Population	Established Alien Species - Predatory Terrestrial Vertebrates	3.4	3.6
H10	Park Use & Activities			Subsistence Farming/Agriculture	1.2	3.3
T25	Terrestrial Ecosystems	Consumers	Population	Invertebrate Charismatic or Species of Concern	3.2	3.3
P07	Climate & Air Quality			Weather & Climate	3.4	3.2
M02	Marine Ecosystems	Benthic	Landscape	Benthic Habitats	2.6	3.0
M08	Marine Ecosystems	Benthic	Population	Coral Growth/Size and Age Structure, and Recruitment	2.6	3.0
T32	Terrestrial Ecosystems	Consumers	Population	Established Alien Species - Feral Ungulates	2.4	3.0
M01	Marine Ecosystems	Benthic	Landscape	Coral Growth (erosion & accretion)	2.7	2.9
T26	Terrestrial Ecosystems	Consumers	Population	Seabirds (including T & E spp.)	3.5	2.9
M20	Marine Ecosystems	Water column (motile)	Population	Marine Species Protection (T, E, S-o-C species)	3.3	2.9
M07	Marine Ecosystems	Benthic	Population	Benthic Marine Invertebrates and Algae	2.7	2.8
T18	Terrestrial Ecosystems	Consumers	Community	Terrestrial Invertebrate Biodiversity	2.9	2.8
T37	Terrestrial Ecosystems	Consumers	Population	Alien Incipient Invasives - Predatory Terrestrial Vertebrate	3.3	2.8
T13	Terrestrial Ecosystems	Vegetation	Population	Native Plant Species Protection (T, E, S-o-C species)	4.0	2.7
M03	Marine Ecosystems	Benthic	Community	Benthic Marine Invertebrates and Algae Biodiversity	2.8	2.6
M06	Marine Ecosystems	Benthic	Population	Benthic Reef Fisheries / Collected species (inverts: sea cucumbers, pololo worm, corals; etc)	2.7	2.6
M22	Marine Ecosystems	Intertidal	Community	Intertidal Biodiversity - Vertebrates, Invertebrates, and Algae	3.1	2.6
P22	Water Quality			Surface Water Quality Core parameters	3.6	2.6
T24	Terrestrial Ecosystems	Consumers	Population	Herps (native)	1.7	2.6
T33	Terrestrial Ecosystems	Consumers	Population	Established Alien Species - Invasive Terrestrial Invertebrate Pests of natural systems	2.4	2.6
T39	Terrestrial Ecosystems	Consumers	Population	Alien Incipient Invasives - Terrestrial Invertebrates	2.2	2.6
F2	Freshwater Ecosystems	Consumers	Community	Aquatic and Riparian Species (vertebrate and invertebrate) Biodiversity	3.5	2.5
M16	Marine Ecosystems	Water column (motile)	Population	Established Turtle Disease & Pathogens	2.9	2.5
T29	Terrestrial Ecosystems	Consumers	Population	Terrestrial Invertebrate Species Protection (T, E, S-o-C Species)	2.9	2.5
T30	Terrestrial Ecosystems	Consumers	Population	Established Disease & Pathogens of Terrestrial Vertebrates	2.5	2.5
P30	Water Quality			Marine Water Quality - Toxics & contaminants	3.0	2.4
H13	Park Use & Activities			Culturally Significant Plant Harvest	2.5	2.4
M13	Marine Ecosystems	Water column (motile)	Community	Water Column Marine Vertebrates and Invertebrates Biodiversity	2.8	2.3
P39	Geology	Landforms		Coastal Shoreline Change (erosion & accretion)	3.2	2.3
T09	Terrestrial Ecosystems	Vegetation	Community	Recovery/Change of Native Vegetation with Feral Ungulate Control	2.4	2.3
T17	Terrestrial Ecosystems	Vegetation	Population	Alien Incipient Invasive Plants	3.7	2.3
T06	Terrestrial Ecosystems	Vegetation	Community	Terrestrial Plant Biodiversity	3.6	2.2
T08	Terrestrial Ecosystems	Vegetation	Community	Recovery/Change of Native Vegetation with Alien Plant Control	3.5	2.2
T11	Terrestrial Ecosystems	Vegetation	Population	Invertebrate Biocontrol of Plants	1.7	2.2
T22	Terrestrial Ecosystems	Consumers	Population	Invertebrate Biocontrol of Invertebrates	1.7	2.2
H12	Park Use & Activities			Coral/Sand Mining Harvest	1.2	2.1
H14	Park Use & Activities			Culturally Significant Vertebrate Species Harvest	1.6	2.1
P24	Water Quality			Marine Water Quality Supplemental parameters	2.9	2.1
T28	Terrestrial Ecosystems	Consumers	Population	Terrestrial Invertebrates Associated with Habitat Quality	2.7	2.1
H08	Park Use & Activities			Marine Recreational Activities & Groundings/Anchor Damage	2.5	2.0
M14	Marine Ecosystems	Water column (motile)	Population	Water Column Reef Fisheries	2.2	2.0
M18	Marine Ecosystems	Water column (motile)	Population	Water Column Marine Invertebrates	2.8	2.0
M25	Marine Ecosystems	Intertidal	Population	Intertidal Reef Fisheries / Collected species (limu, opahi, crabs, fish, etc.)	2.3	2.0
M26	Marine Ecosystems	Intertidal	Population	Intertidal Marine Invertebrates, Fish, and Algae	3.0	2.0
P10	Soil, Water, & Nutrient Dynamics			Ocean/Physical Dynamics: Currents, Sea Level, Tides/Swell	2.7	2.0
P17	Soil, Water, & Nutrient Dynamics			Flowing surface water hydrology	2.7	2.0
P18	Soil, Water, & Nutrient Dynamics			Wetlands (incl. anchialine pools) hydrology	3.2	2.0
P25	Water Quality			Surface Water Quality Supplemental parameters	3.5	2.0
P27	Water Quality			Marine Water Quality - Microbiology	2.8	2.0
P28	Water Quality			Surface Water Quality - Microbiology	2.9	2.0
P31	Water Quality			Surface Water Quality - Toxics & contaminants	3.7	2.0
P32	Water Quality			Marine Water Quality - macroinvertebrates	2.8	2.0
P33	Water Quality			Surface Water Quality - macroinvertebrates	2.6	2.0
T31	Terrestrial Ecosystems	Consumers	Population	Alien Incipient Disease & Pathogens of Terrestrial Vertebrates	2.5	1.9
T21	Terrestrial Ecosystems	Consumers	Community	Recovery/change of Native Wildlife and habitats (including wetlands) with restoration of native vegetation	3.2	1.9
F6	Freshwater Ecosystems	Consumers	Population	Alien Incipient Invasives - Predatory Freshwater (vertebrate and invertebrate)	2.8	1.8
H05	Land Use			Water Use(s) Within & Surrounding Parks	3.0	1.8
H06	Land Use			Land Use(s) Within & Surrounding Parks	3.4	1.8
M05	Marine Ecosystems	Benthic	Community	Subtidal - Soft Bottom (sand flat, seagrass bed)	2.4	1.8
M10	Marine Ecosystems	Benthic	Population	Alien Incipient Coral Disease & Pathogens	2.5	1.8
M23	Marine Ecosystems	Intertidal	Community	Intertidal - Hard Bottom	2.2	1.8
M24	Marine Ecosystems	Intertidal	Community	Intertidal - Soft Bottom (sand beach, mudflat, mangrove)	2.6	1.8
P20	Water Quality			Ground Water Quality Core parameters	2.8	1.8
P26	Water Quality			Ground Water Quality - Microbiology	2.9	1.8
T27	Terrestrial Ecosystems	Consumers	Population	Shorebirds and Waterbirds (including T & E spp.)	3.3	1.8
T41	Terrestrial Ecosystems	Cave Systems	Community	Cave & lava tube communities	2.0	1.8
H04	Land Use			Alien Invasive Species Points of Entry	3.4	1.7
T38	Terrestrial Ecosystems	Consumers	Population	Alien Incipient Invasives - Fungi	2.0	1.7
T40	Terrestrial Ecosystems	Consumers	Population	Alien Incipient Invasives - Vertebrates	2.6	1.7
H11	Park Use & Activities			Bio-prospecting Harvest	1.9	1.6
H16	Management Zones			Management Zone uses	3.1	1.6
M11	Marine Ecosystems	Benthic	Population	Established Alien Species - Benthic Marine	2.7	1.6
M12	Marine Ecosystems	Benthic	Population	Alien Incipient Invasives - Benthic Marine	2.8	1.6
M27	Marine Ecosystems	Intertidal	Population	Established Alien Species - Intertidal Marine	2.5	1.6
M28	Marine Ecosystems	Intertidal	Population	Alien Incipient Invasives - Intertidal Marine	2.6	1.6
P12	Soil, Water, & Nutrient Dynamics			Soil Erosion	2.9	1.6
P02	Climate & Air Quality			Atmospheric Deposition: Wet (direct & occult) and Dry	2.1	1.5
T02	Terrestrial Ecosystems	Vegetation	Landscape	Ecozone Boundaries	2.1	1.5
T03	Terrestrial Ecosystems	Vegetation	Landscape	Landscape Fragments, Patch Size, Land Cover	2.6	1.5
T14	Terrestrial Ecosystems	Vegetation	Population	Established Plant Disease & Pathogens	2.9	1.5
T15	Terrestrial Ecosystems	Vegetation	Population	Alien Incipient Plant Disease & Pathogens	2.6	1.5
F3	Freshwater Ecosystems	Consumers	Population	Freshwater Animals Disease & Pathogen	2.2	1.3

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H02	Viewscapes / Lightscapes			Viewsheds	2.7	1.3
H03	Viewscapes / Lightscapes			Lightscape & Night sky	2.7	1.3
P03	Climate & Air Quality			Atmospheric Gases: Climate Change Indicators, Human Pollutants, Natural-Volcanic	2.2	1.3
P05	Climate & Air Quality			Atmospheric Particulates: Climate Change Indicators, Human Pollutants, Natural-Volcanic	2.2	1.3
P06	Climate & Air Quality			Solar radiation	2.7	1.3
P09	Climate & Air Quality			Climate Representations - 2- & 3- dimensional	1.7	1.3
T35	Terrestrial Ecosystems	Consumers	Population	Established Alien Species - Terrestrial Invertebrate Pests (agricultural)	1.8	1.3
F1	Freshwater Ecosystems	Producers		Community dynamics of primary producers	2.5	1.2
H07	Park Use & Activities			Litter/debris	3.1	1.2
P13	Soil, Water, & Nutrient Dynamics			Soil Quality - Biological	1.7	1.2
P14	Soil, Water, & Nutrient Dynamics			Soil Quality- Chemical	1.9	1.2
P15	Soil, Water, & Nutrient Dynamics			Soil Quality- Physical	2.3	1.2
P23	Water Quality			Ground Water Quality Supplemental parameters	2.6	1.2
P29	Water Quality			Ground Water Quality - Toxics & contaminants	2.8	1.2
P08	Climate & Air Quality			Extreme events (weather & ocean)	3.0	1.1
P11	Soil, Water, & Nutrient Dynamics			Biogeochemical Cycles - Nutrient Cycling	2.5	1.1
T19	Terrestrial Ecosystems	Consumers	Community	Terrestrial Vertebrate (including off-shore islets refugia) Biodiversity	3.3	1.1
H01	Soundscapes			Alien, Natural, Human Soundscapes	2.6	1.0
H09	Park Use & Activities			Footprint & Visitor Use Patterns	3.3	1.0
P01	Climate & Air Quality			Visibility	2.9	1.0
P19	Soil, Water, & Nutrient Dynamics			Groundwater dynamics	2.4	1.0
T01	Terrestrial Ecosystems	Vegetation	Landscape	Soil and Pollen Landscape History	2.3	1.0
T10	Terrestrial Ecosystems	Vegetation	Community	Recovery/Change of Native Vegetation with Invasive Alien Invertebrate Control	1.8	1.0
T12	Terrestrial Ecosystems	Vegetation	Population	Plant Pathogen Biocontrol of Plants	1.6	0.9
P36	Geology	Hazards		Seismicity of Non-Volcanic Origin	1.9	0.9
F4	Freshwater Ecosystems	Consumers	Population	Amphidromous Fauna Size-Age Structure, Reproduction and Recruitment	2.1	0.8
M15	Marine Ecosystems	Water column (motile)	Population	Established Marine Animal (other than turtles) Disease & Pathogens	1.9	0.8
M17	Marine Ecosystems	Water column (motile)	Population	Established Alien Species - Water Column Marine	2.5	0.8
M21	Marine Ecosystems	Water column (motile)	Population	Alien Incipient Invasives - Water Column Marine	2.1	0.8
P04	Climate & Air Quality			Marine Aerosols	1.4	0.8
P42	Geology	Landforms		Cave Environmental conditions	2.0	0.8
P43	Geology	Landforms		Cave Geology: non-karst	2.2	0.8
P44	Geology	Landforms		Cave Geology: karst	0.9	0.8
P37	Geology	Hazards		Seismicity of Volcanic Origin	1.8	0.7
T20	Terrestrial Ecosystems	Consumers	Community	Recovery/Change of Native Invertebrates Communities with Native Plant Restoration	2.5	0.7
P34	Geology	Hazards		Volcanic Unrest - Ground Deformation	1.4	0.5
P38	Geology	Hazards		Mass Geologic Wasting	1.6	0.5
T05	Terrestrial Ecosystems	Vegetation	Landscape	Forest Dieback	1.5	0.0